CLAIMS

What is claimed is:

1. A subscriber line driver apparatus comprising:

an impedance bridge coupled to a subscriber line;

a first pair of current drivers coupled to the impedance bridge for driving a voice signal in a first frequency range onto the subscriber line; and

a second pair of current drivers coupled to the impedance bridge for driving a data signal in a second frequency range onto the subscriber line, wherein the impedance bridge couples the second pair of current drivers to the subscriber line across an output impedance of Z1+Z2 within the second frequency range.

2. The apparatus of claim 1 wherein Z1+Z2 is approximately 100Ω.

3. The apparatus of claim 2 wherein Z1≈Z2, wherein Z1 is in a range of 40-60Ω.

4. The apparatus of claim 1 wherein the first frequency range has an upper bound of approximately 4 kHz.

5. The apparatus of claim 1 wherein the second frequency range has a lower bound greater than 25 kHz.

6. The apparatus of claim 1 wherein the data signals are discrete multi-tone encoded signals.

7. The apparatus of claim 1 wherein the impedance bridge comprises a first impedance Z1, a second impedance Z2, and a capacitor C1.

8. The apparatus of claim 7 wherein a tip line of the subscriber line and one of the second pair of current drivers is connected to a first terminal of Z1, wherein a first terminal of C1 and one of the first pair of current drivers is connected to a second terminal of Z1, wherein the other of the second pair of current drivers is connected to a first terminal of Z2, wherein the other of the first pair of current drivers and a second terminal of C1 are connected to a second terminal of Z2.

9. The apparatus of claim 1 further comprising:

an impedance synthesis circuit providing an impedance synthesis feedback signal to the first pair of current drivers, wherein within the first frequency range the output impedance across the subscriber line is controlled by the impedance synthesis circuit.

10. A subscriber line driver apparatus comprising:

an impedance bridge including a first impedance Z1 and a second impedance Z2 coupled to a subscriber line;

a first pair of current drivers coupled to the impedance bridge for driving a voice signal in a first frequency range onto the subscriber line;

an impedance synthesis circuit providing a feedback signal to the first pair of current drivers; and

a second pair of current drivers coupled to the impedance bridge for driving a data signal in a second frequency range onto the subscriber line, wherein within the first frequency range an output impedance across the subscriber line is controlled by the impedance synthesis circuit, wherein within the second frequency range the output impedance is Z1+Z2.

11. The apparatus of claim 10 wherein Z1+Z2 is approximately 100Ω.

12. The apparatus of claim 11 wherein Z1≈Z2, wherein Z1 is in a range of 40-60Ω.

13. The apparatus of claim 10 wherein the first frequency range has an upper bound of approximately 4 kHz.

14. The apparatus of claim 10 wherein the second frequency range has a lower bound greater than 25 kHz.

15. The apparatus of claim 10 wherein the data signals are discrete multi-tone encoded signals.

16. The apparatus of claim 10 wherein the impedance bridge further comprises a capacitor C1.

17. The apparatus of claim 16 wherein a tip line of the subscriber line and one of the second pair of current drivers is connected to a first terminal of Z1, wherein a first terminal of C1 and one of the first pair of current drivers is connected to a second terminal of Z1, wherein the other of the second pair of current drivers is connected to a first terminal of Z2, wherein the other of the first pair of current drivers and a second terminal of C1 are connected to a second terminal of Z2.

18. The apparatus of claim 16 wherein $Z1 \approx Z2$, wherein C1 is approximately 5 nF.